

# NOAA, NATIONAL WEATHER SERVICE, WEATHER FORECAST OFFICE Miami, Florida 33165

# South Florida Dry Season Outlook 2012-2013

# Elusive El Niño Presents Uncertain Dry Season Outlook for South Florida

**October 19th, 2012**: The rainy season will soon come to a close across South Florida, but not before being among the wettest rainy seasons on record for many locations, particularly in southeast Florida. Rainfall totals from May 1st through October 15<sup>th</sup> (Figure 1) ranged anywhere from 45 to 65 inches over much of the east coast metro areas, including Miami International Airport with 67.65 inches (2<sup>nd</sup> wettest on record), Palm Beach International Airport with 58.12 inches (3<sup>rd</sup> wettest) and Fort Lauderdale's Dixie Water Plant with 55.11 inches (9<sup>th</sup> wettest). These rainfall amounts are almost a year's worth of rain in less than 6 months!

Other locations in South Florida also experienced high rainfall amounts, especially areas around Lake Okeechobee where rainfall amounts were in the 40-50 inch range. Not all of southern Florida was extremely wet, however. Areas in western and northern Collier County only received 25 to 35 inches of rain which is about 5 to 10 inches below the rainy season normal.

A combination of large-scale tropical systems (Tropical Storms Debby and Isaac) and several localized very heavy rainfall events contributed to the high rainfall totals across much of the area. As a result, groundwater levels are high over most of South Florida, with Lake Okeechobee at just under 16 feet (15.89 feet) above sea level as of October 18<sup>th</sup>. This is 1.9 feet above normal.

## **Dry Season Climate Factors**

After La Niña's departure last spring, the ENSO (El Niño/Southern Oscillation) phase became warm, or El Niño, over the summer. El Niño is the warm water phase of ENSO and is

characterized by a warming of waters in the central and eastern equatorial Pacific Ocean. This warming affects large scale weather systems across North America (Figure 2). The typical main impact of El Niño in Florida is a somewhat cooler and wetter winter and spring due to the storm track being farther south which increases cloud cover and cold frontal passages. This often increases the likelihood of severe weather episodes, including tornadoes.

However, the current El Niño has remained on the weak side and present indications are that it will not intensify much over the next few months. In fact, some long-range models show the El Niño dissipating by the end of the year. The weaker the El Niño, the less impact it has on weather patterns across North America. This means that other factors will significantly affect the weather this upcoming dry season, most of which cannot be predicted more than two weeks in advance, such as the North American Oscillation (NAO, Figure 3).

The end result is a highly-uncertain temperature and precipitation outlook this upcoming dry season, as reflected in the <u>Climate Prediction Center (CPC) outlooks</u> (Figures 4 and 5) which indicate equal chances of near, above or below normal temperatures through April 2013, and only an enhanced likelihood of above normal precipitation from December through February. Details on the local outlook are included below.

## **Precipitation Outlook and Possible Impacts:**

Barring an unexpected intensification of El Niño this winter, the South Florida precipitation outlook calls for near to above-normal precipitation through early winter, followed by the possibility of below-normal precipitation from February through April. This is based on the CPC outlook indicated above, as well as input from long-range models and the possibility of a wetter El Niño pattern dissipating during spring 2013. This is a low-confidence outlook due to conflicting factors and the lack of a strong ENSO signal.

Possible impacts include a tendency for winter storminess to be slightly higher early in the winter season before diminishing late, keeping the potential for severe weather near normal for a South Florida dry season. A possible decrease in rainfall later in the dry season could lead to increased fire danger as copious rainy season moisture will promote grass and underbrush growth into the early part of the dry season. This grass and underbrush can then dry out and turn into fuel for wildfires if conditions dry out during the spring months

The average dry season rainfall over south Florida ranges from 12 to 15 inches over interior and western sections to 15 to 21 inches over eastern metro sections.

## **Temperature Outlook and Possible Impacts:**

As with the precipitation outlook above, a weak El Niño and conflicting signals in long-term models point toward a highly-uncertain and low-confidence temperature outlook.

Near-normal temperatures with a tendency toward slightly below-normal temperatures is anticipated through January, followed by a possible trend to above-normal temperatures for the last part of the dry season (through April). Once again, a strengthening of the El Niño beyond what is expected could lead to cooler overall conditions.

A key variable, or wild-card, is the presence of intra-season regional and global weather patterns that either counteracts or enhances the prevailing El Niño pattern. This is particularly so in years of weak ENSO patterns such as what is currently observed. Some examples of these variations, or oscillations, are the <a href="Pacific-North American Pattern">Pacific-North American Pattern</a> (PNA) and the North Atlantic Oscillation (NAO, Figure 3).

These oscillations are only predictable out to 2 weeks, therefore a reliable forecast of which phase will be present during the winter is very difficult if not virtually impossible.

The average winter temperatures over south Florida range from 64 to 66 degrees over interior and western areas to 67 to 69 degrees over eastern metro areas.

Freeze episodes occur on almost a yearly basis, especially over interior areas and around Lake Okeechobee. The severity of these freezes varies from relatively minor with little impacts, to severe ones such as in January and December of 2010 when millions of dollars in crop damage was noted. This winter's chances of seeing a moderate to severe freeze are about the same as most years, which is unlikely but certainly a possibility, especially in December and January.

Stay tuned to local media outlets and NOAA Weather Radio for the latest weather information. For more information on the expected weather hazards and impacts in south Florida, as well as for updated local weather information and outlooks, please visit the National Weather Service in Miami web site at <a href="weather.gov/southflorida">weather.gov/southflorida</a>. You can also visit our <a href="South Florida Climate">South Florida Climate</a> <a href="Page">Page</a>.

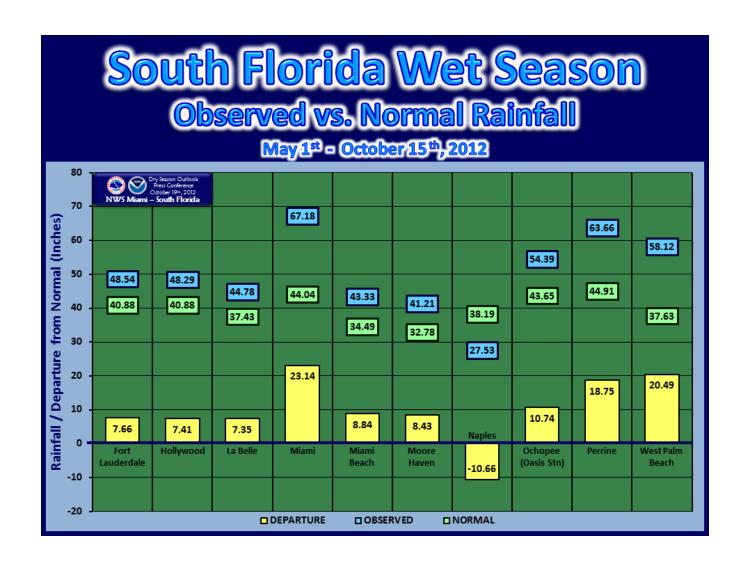


Figure 1: Observed vs. Normal Rainfall for Select South Florida sites

## TYPICAL JANUARY-MARCH WEATHER ANOMALIES AND ATMOSPHERIC CIRCULATION DURING MODERATE TO STRONG EL NIÑO & LA NIÑA

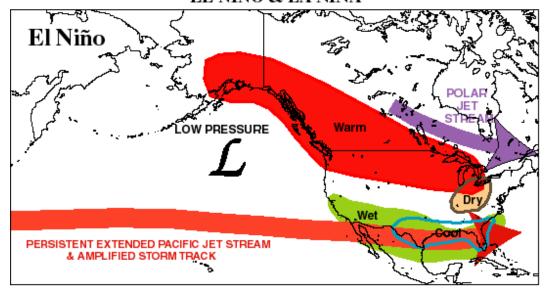


Figure 2: Typical Winter El Niño Atmospheric Patterns. These patterns are most noticeable in well-defined El Niño events, less so in weak events such as this winter's.

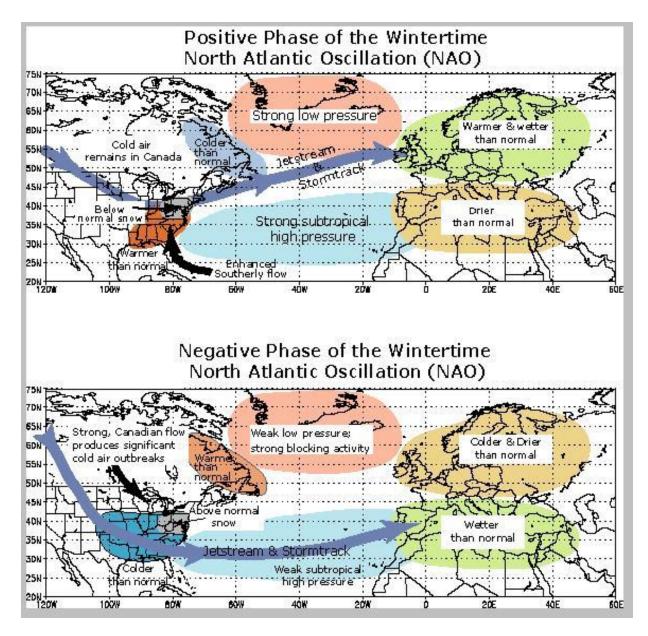


Figure 3: Positive and Negative Phases of the North American Oscillation (NAO). Positive phase on top enhances warmth over Florida (such as in the winter of 2011-2012) while negative phase on bottom leads to colder temperatures (such as in the winter of 2009-2010).

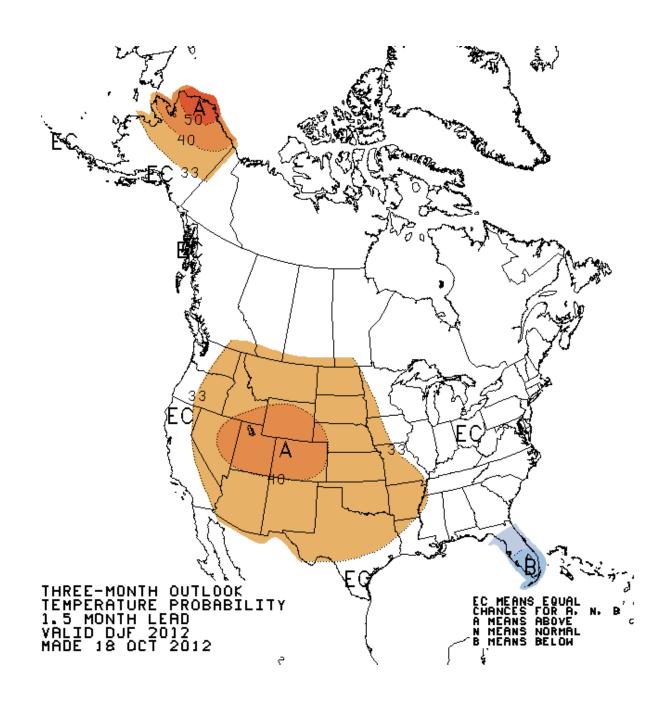


Figure 4: CPC Temperature Outlook for December – February indicating a 40-50% chance of cooler than normal conditions.

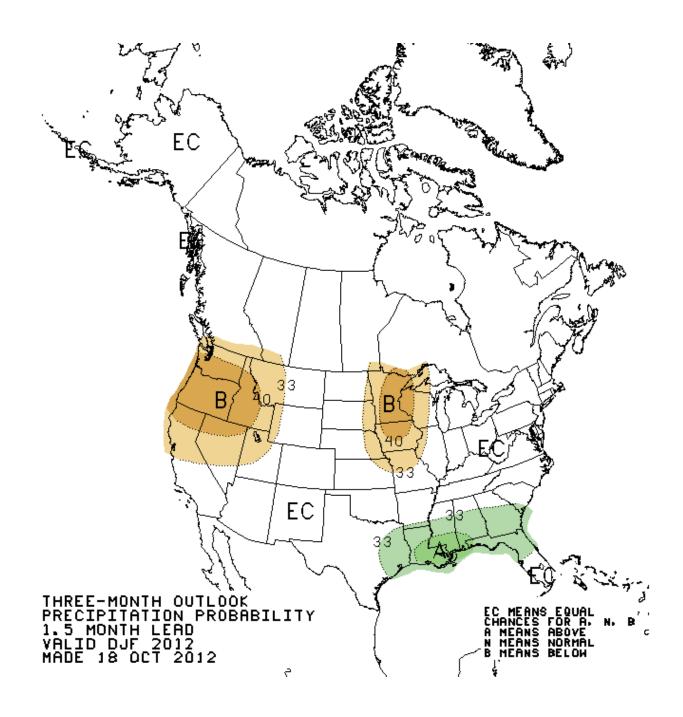


Figure 5: CPC Precipitation Outlook for December – February indicating equal chances of near, above or below normal precipitation.